



**PHASE 1  
IMPLEMENTATION PLAN**

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# INTRODUCTION



## Background

The Northwest Indiana region has witnessed a significant increase in the number of off-road trail miles in Lake, Porter & LaPorte Counties. Since 1990, these figures have grown exponentially from just over 12 miles to a total of 74 miles in 2008, with approximately 57 additional miles funded for development. The vast majority of these miles exist in Lake County due to their population advantage.

POPULATION	(2000 U.S. Census)
Lake County	484,564
Porter County	146,798
LaPorte County	110,106

Even though these figures have increased since this last decennial count, the overall proportions have remained consistent.

Although population does account for a major determinant in trail location, another factor remains: the lack of open, physical corridors which connect major population centers in Porter County. In Lake County, due to the number of railroads which were abandoned in the 1970's and 80's, nearly all communities have either built trails on these corridors, or they have applied for and have received funds for future routes. This doesn't take into account the many other opportunities that are afforded with corridors yet studied. Furthermore, a number of utility corridors, mainly held in easement or in fee-simple by the Northern Indiana

Public Service Corporation (NIPSCO) also exist to provide interlocal connections where desired.

Unfortunately for Porter County, these opportunities are not as plentiful, and where they do exist, not enough of the population is served. Case-in-point involves the abandoned Erie-Lackawanna and Pennsylvania Railroad corridors. Even though each of these corridors have been either built-out or funded in Lake County, since each cross into vastly rural territories in Porter County, they have not enjoyed equal success. The exceptions are the popular Prairie-Duneland and Iron Horse Trails in the Portage vicinity. Utility corridors are not nearly as plentiful either.

The northern half of Porter County has been accommodated with trails that connect interlocally, and to the Indiana Dunes National Lakeshore and State Park via the limestone-base Calumet Trail. This facility does take advantage of a significant NIPSCO corridor just north of US 12 for a distance of 9 miles. The Prairie-Duneland Trail connects eastward into Chesterton from Lake County through Portage for a total of 11 miles, with the newly developed Iron Horse Heritage Corridor running wholly within the City of Portage along its northern half.

As popular as these facilities are, there remains one problematic aspect to each of them – their lack of connectivity to the southern reaches of Porter County. More telling is the total lack of prime physical corridors that link to the county seat – the City of





Valparaiso, and points south including Kouts, Hebron and the Kankakee River. For years Valparaiso has strived to develop a first-class non-motorized network, but has been unable to develop paths north of its jurisdiction. One of the main reasons is the fact that no other municipality directly borders Valparaiso – from any direction. Another fact, as already detailed, is the absence of ready-made linear corridors.

In the late 1990’s, the Northwestern Indiana Regional Planning Commission’s (NIRPC) Transportation Enhancement Committee put together the first “Regional Priority Trails & Corridors Map” in an effort to prioritize Federal transportation monies directed for trails in the NIRPC region. During this exercise, a group of stakeholders from Porter County preserved an off-road trail corridor to parallel Meridian Road from Valparaiso to Chesterton as a way to link the community into the larger regional trail network. There were some constraints to this proposed route and one of the main constraints was that lack of linkage into the southern parts of Porter County. The Meridian Road trail project is an important trail project and should continue to move forward as a collector / secondary trail.

A new concept emerged as a legitimate concept to link to the northern parts of the county as well as the Dunes. In 2006, NIRPC’s Ped & Pedal Committee (PPC) agreed that the Meridian Corridor should be shifted east to reflect this new concept – a separate trail along State Road 49 (SR 49). The reasoning was simple: SR 49 afforded a significant amount of right-of-way from US 30 north to the Dunes State Park. The thinking involved routing a trail along the roadway through the corridor, which

would link major population centers such as Valparaiso, Kouts, Chesterton and Porter to the regional trail network and Indiana Dunes. Based on this logic, PPC ascribed the corridor north of US 30 as a “High Priority” route and the segment south of US 30 as a “Medium Priority” route due not only to the drop in population, but also the narrowing of the road right-of-way (ROW).

**SPECIAL NOTE:** When developing a trail system one could consider a trail system the same as a road classification system. Trails of State or regional importance as identified in the Hoosiers On the Move: The Indiana State Trails, Greenways and Bikeways Plan; and the Northwest Indiana Regional Planning Commission’s (NIRPC) 2005 Ped and Pedal Plan, would be considered arterial type trails. Trails that connect to major regional trails and communities would be considered collectors. Finally, trails and/or sidewalks located within subdivisions are analogous to local streets. Trails such as Meridian Road and those found on the Valparaiso Pathways and Greenways Master Plan for example would be classified as collector trails. The Dunes-Kankakee Trail would be classified as an arterial as it appears within the Hoosiers on the Move: The Indiana State Trails and Greenways and Bikeways Plan.

To help push this concept towards implementation, and the desire to connect major population centers and destinations in Porter County, a group of stakeholders have come together to formulate this planning document to spearhead the development of a separate multi-use non-motorized trail along SR 49, as well as an east-west route along State Road 8 as part of the American



Discovery Trail network. The balance of this report will detail the historical support for a SR 49 trail route, highlight best practices behind the trail development and maintenance, provide a general description of a proposed route including a detailed overview of Phase I from the Dunes State Park south to the Porter County Expo Center, and conclude with implementation strategies.

NIRPC, in conjunction with the Porter County Convention, Recreation & Visitor Commission (PCCRVC), the Indiana Department of Natural Resources (DNR), the National Park Service (NPS), Porter County Government, and the communities of Porter, Chesterton, Valparaiso and Portage, have developed this plan to induce the prompt development of a route and to guide the Indiana Department of Transportation (INDOT) to accommodate a trail where feasible.

## Project & Plan Support

### Planning Support

Although developed first in the late 90's, the Regional Priority Trails & Corridors Map (figure 1) gained full acceptance as part of the *NW Indiana Regional Pedestrian & Bicycle Plan of 2005*, or the *Ped & Pedal Plan*. This document firmly established 29 corridors with nearly 500 miles of potential trails in the NIRPC region alone. The map included the segment along Meridian Road, which eventually was changed to the "State Road 49 Corridor" by an act of the Ped and Pedal Committee in 2006.



The identification of the corridor in the Ped & Pedal Plan was the first step in establishing legitimacy for advancing a north-south trail corridor in central Porter County. However, the movement became more pronounced when the SR 49 corridor was identified as a "State/Backbone" route in the 2006 Indiana State Trails, Greenways & Bikeways Plan (nicknamed "Green Moves") as spearheaded by Governor Mitch Daniels. Earlier that year, Governor Daniels convened a "Trails Summit", bringing together a wealth of public officials, municipal staff and trail advocates throughout the state. The goal was to create a unified document outlining a number of priority routes in Indiana that could connect





greenways. Since the plan’s adoption, the town has developed a significant stretch of pathways along 23<sup>rd</sup> Street from the Prairie-Duneland Trail south into Dogwood Park, and points just east and west along County Road 1100 North. The eventual goal is to link the path to Chesterton High School, and possibly continuing eastward to SR 49. There are also plans to build a side path along Calumet Avenue from Woodlawn, south to County Road 100 East, eventually connecting back to SR 49. This would provide a direct connection to the Coffee Creek development on the east side of SR 49.

In 2005, a minor effort was put forward by NIRPC and the City of Valparaiso, in conjunction with Lehman & Lehman, INC (consulting firm) on the concept of creating a linear state park along the SR 49 corridor. This concept would mimic other established parks in all the states surrounding Indiana. This planning process never moved beyond the concept phase however.

*DNR/Dunes State Park Entrance Route*

The seeds for a potential route along SR 49 began in 1993 with the awarding of a Federal Transportation Enhancement grant to the DNR towards the development of an off-road trail from the Dunes State Park entrance to the Dune Park South Shore Line Station, approximately one mile south. The proposal involved creating a trail along SR 49 north of US 12 that would link South Shore commuters to the beach. This represented the first such proposal for a trail along any stretch of SR 49.



Even though funding was awarded by INDOT, this project languished for years until the entrance of the Dunes State Park underwent a near-total facelift in 2007. A bike lane was installed which leads users to the entrance parking lots, although no provisions were made to link destinations south of the entrance. However, state park officials began to discuss ways to spend the TE grant from 1993 since a link to the Dune Park Station was becoming a necessity due to the number of visitors coming in via the South Shore. Soon after, with the assistance of INDOT, a concept was developed to “shave” off a lane of traffic leading out of the park on SR 49, and to install the trail in this location. The trail will be separated by a two-rail fence affording added protection for users. Expected completion for this segment is 2010.





### *Porter Orchard Pedestrian Way*

Several years ago, the Town of Porter secured nearly \$1 million in federal dollars to create a sidepath along Waverly Road from East Oak Hill Road north to US 20. The project will offer residents safe access to the Indiana Dunes National Lakeshore and to local destinations within the town limits. In addition, the pathway will involve a 10 foot separate bridge over the Little Calumet River. The expected completion of this route is scheduled for 2010.

### *US 12 & US 20 Bridge Reconstruction*

In 2008, INDOT brought to the attention of both NIRPC and the PCCRVC a project in the planning phases which involved the reconstruction of three major bridges on SR 49 over US 12, US 20 and the South Shore Railroad. INDOT was cognizant of the planned trail from the Dunes State Park entrance, and desired to discuss the plans on developing a trail within the SR 49 right-of-way as outlined by NIRPC and Governor Daniels’ Trails Plan. During a meeting at their LaPorte District offices in March, INDOT officials took into consideration the concept of a separate bike lane on all bridges, which would be protected by a concrete barrier wall. INDOT was more receptive to the concept over US 12 and the South Shore tracks, but the idea of US 20 is more complex. In order to reach the US 20 bridge, trail users would have to cross ingress and egress ramps on the east side of SR 49 to access the bridge. These bridge projects are scheduled to be completed in 2010.

### *Dorothy Buell Memorial Visitor Center*

In 2006, the PCCRVC and the National Park Service (NPS) jointly dedicated the new Dorothy Buell Memorial Visitor Center. This facility, located at the southeast quadrant of the US 20 and SR 49 interchange, also houses the new offices for the PCCRVC. The location of the facility, just over one half mile north of Interstate 94, offers an excellent destination point for travelers to the Dunes. As part of their long range plan, the PCCRVC desires a trail along SR 49 to connect north to Dunes State Park to afford visitors the opportunity to access the region’s premiere destination by bike or foot. To this end, the PCCRVC has played a lead role in bringing together vital support behind the SR 49 trail concept through the whole of Porter County.

### *Marquette Greenway*

As championed by Congressman Peter Visclosky in the early 1980’s, a movement to increase public access to Lake Michigan came to full fruition with the creation of the “Marquette Plan: A Strategy for Lakefront Reinvestment” in 2005. This document provided a bold series of recommendations to aid in the revitalization of arguably the regions prime ecological resource. In 2008, the “Marquette Plan: Phase 2” was developed by NIRPC to supplement the Marquette Plan’s scope, now incorporating the entire Indiana lakefront from Whiting to Michiana Shores. Embedded within each plan is a proposed off-road trail near the lakefront providing vital access for non-motorized users either to the Lake or to other nearby communities. Over time this tri-state route has been dubbed the “Marquette Greenway” and will utilize



20 planned segments covering over 50 miles from Chicago, Illinois to New Buffalo, Michigan. NIRPC is overseeing the development of this route. It includes the entire Calumet Trail, which crosses the SR 49 corridor just north of US 12.

### American Discovery Trail

The American Discovery Trail (ADT) is a new breed of national trail — part city, part small town, part forest, part mountains, part desert — all in one trail. Its 6,800+ miles of continuous, multi-use trail stretches from Cape Henlopen State Park, Delaware, to Pt. Reyes National Seashore, California. It reaches across America, linking community to community in the first coast to coast, non-motorized trail. The American Hiking Society aided in the establishment of the route in the late 1990's, and it has been under development since. A vast majority of the trail has yet to be constructed, although Indiana has built a substantial number



FIGURE 3: American Discovery Trail

of miles to date. The ADT splits into a northern and southern route near Cincinnati, Ohio [see FIGURE 3] where it traverses northwesterly into the NIRPC region. The official route is planned to cross the Kankakee River from North Judson and enter LaCrosse, then westward through Kouts and Hebron, then into Lake County via the Veterans Memorial Trail and Pennsy Greenway [see FIGURE 4]. The ADT is envisioned to be completed as part of Phase 3 of the DUNES KANKAKEE TRAIL Trail.



FIGURE 4: American Discovery Trail through Indiana



# BEST PRACTICES



The concept behind a new trail along a heavily-used roadway utilizes a careful analysis of proper design principles. These principles must provide access and protect the non-motorized user above all, but in the process encourage adherence to sustainable design practices that enhance the ecology of the corridor. These design elements must work in harmony with practical matters involving ongoing responsibilities such as maintenance and security. This section aims to highlight various “best practices”, or concepts that protect, to the greatest extent possible, the experience of the trail user and the surrounding environment, with minimal interruption to the flow of motorized traffic through the corridor. An explanation of trail benefits follows here:

## Trail Benefits

The following is an excerpt as described in NIRPC’s 2005 *Ped & Pedal Plan*:

### *The Benefits of a Pedestrian and Bicycle-Friendly Culture*

Into this muddled chasm of poor development, bad health habits and sedentary lifestyles has emerged a new philosophy on the benefits of non-motorized travel. Communities around the country are re-discovering the many positive attributes that are brought about by catering to a culture of connectivity.

- A. Making the Connections - In a poorly designed community of scattershot subdivisions and land uses, what emerges as the most negative aspect is the lack of being able to connect to any other part either by foot or bike. It is estimated that a person can comfortably walk one mile in 15 minutes, and by bike in five. However, the way many communities have developed, traversing these distances in any other form than by automobile is tantamount to a death sentence.

With connected sidewalks, greenways and trails incorporated into the growing development scheme (or retrofitted for that matter), communitywide links are assured, as well as a positive quality of life. There are numerous destinations that would benefit including schools, parks, civic facilities (libraries), retail centers and other areas of employment. A growing number of communities are beginning to recognize that their constituents demand better quality of life choices and facilities that improve their health and wellness.

To this end, and as mentioned earlier in this report, the primary reason people use trails is for improving their health - far ahead of recreational purposes. A safe, maintained and planned non-motorized network represents a tremendous attraction for new residents, and for that matter, businesses alike who desire to locate where a healthy





workforce resides. A 1991 Harris Poll found that 46% of the 1,250 adults surveyed said that they would bike to work if designated trails were built.

Trail activities such as walking, jogging or running, in-line skating, cross-country skiing, and bicycling are well documented to improve health and fitness when done on a regular basis. Physical activity need not be unduly strenuous for an individual to reap significant health benefits. This benefit accrues to the individual and, in the form of reduced health-care costs, to society as well.

B. Just “Common Cents” - A growing library of empirical data has clearly shown the positive effects of trail development on a local economy. From a homeownership perspective alone, trail location has been associated with higher property values and attraction for homebuyers.

- A 2003 study by the Center for Urban Policy and the Environment at Indiana University-Purdue University Indianapolis determined that homes near the many greenways in Indianapolis sold for 10% higher than the average for all homes within the larger districts.
- A survey conducted by the National Association of Home Builders found that recent home buyers ranked trails as the second most important community amenity out of a list of 18 choices. Only freeway access ranked higher.
- An informal 1985 survey of 40 experienced real estate experts found that all agreed that the 40-mile Illinois Prairie Path made properties easier to sell and often created a price premium.

In addition to positive home ownership attributes, trails and greenways bring job growth in construction maintenance as well as tourism-related opportunities like bike rentals, restaurants and lodging. In addition, they also attract new businesses to an area, and thus serve as a vital economic development tool.

- Total spending estimates for six trail-heads along the Allegheny Trail ranged from \$5.4 million to \$14.5 million as reported in a 1998 survey.
- A 1998 survey showed that visitors to Ohio’s Little Miami Trail spent an average of \$13.54 per visit just on food, beverages and transportation to the trail. In addition, they spent an estimated \$277 each year on clothing, equipment and accessories to use during their trips. The economic potential was astounding considering there were 150,000 users in 1998.





- The City of Pueblo, Colorado attributes the investment in trails and parks along the Arkansas River and Fountain Creek as one of the most important components in the economic revitalization of this industrial city.

These figures bode well for the Northwestern Indiana region where many of the existing and planned trail systems traverse through established downtown districts. Many of these same trail networks also link up to large retail centers allowing another mode of transportation for utilitarian and employment trips.

- C. Protecting Our Environment - As trail development provides many positives attributes, there also exists solid reasoning for their incorporation in aiding our environment. For one, trail corridors provide linear greenbelts which preserve and protect plant species and open spaces that facilitate wildlife habitats and their migrations. Furthermore, the preservation of trail corridors improve water quality and mitigating flood damage. They do this by providing natural buffer zones to protect streams, rivers and lakes from pollution run-off caused by fertilizer and pesticide use on yards and farms. They also can serve as flood plains that absorb excess water and mitigate damage caused by floods. Such conservation efforts make good sense, because they save communities money in the long-run.

## Trail Design

Standards that govern the proper design of trails, either off-road or shared, have become widely varied and creative over the last two decades. The reasoning is simple – since more people desire to ride their bikes or walk, more engineering is necessary to insure safe passage for the users. This was not always the case, since the “golden standard” of accessibility – multi-use trails – did not draw national attention until the 1990’s. This was due to the success of “rails-to-trails” conversions attributable to the collapse of numerous railroad companies and subsequent abandonment of their corridors. The resulting land offered a tremendous opportunity to non-motorized users to safely and quickly traverse their regions on a nearly-level strip of property. It also provided communities a solid linear park, or greenway for all to enjoy.

As already discussed, there are no abandoned rail opportunities in central Porter County, but the DUNES KANKAKEE TRAIL trail offers the next best thing in a wide, nearly development-free green corridor. The challenge is to successfully “snake” a ribbon of asphalt down the eastern side of the roadway, all the while negotiating heavy motorized traffic locations and avoiding conflicts with railroads. This may appear to be a tall order to accomplish, but with proper initial design and cooperation from INDOT, the project is well within reason.



### Precedent

The concept of paralleling an off-road trail alongside a limited-access highway has been successfully accomplished within a number of corridors in the United States. A 2007 report entitled *Shared Use Paths in Limited Access Highway Corridors* prepared by the Alta Planning + Design firm was the first such review performed. The report highlighted 26 such trails located in various limited-access facilities ranging from US interstates to county highways. The findings outlined a series of design strategies aimed to accommodate a safe and pleasant trail user experience. These strategies included the correct placement of the facility, landscaping considerations, funding, maintenance and operation aspects. The report concluded that these facilities have been around for many years, and their popularity is bound to increase due to rising populations, additional traffic congestion, exorbitant energy prices and a focus on healthy lifestyles. Furthermore these shared use trail corridors offer an excellent opportunity to establish native habitat for wildlife.

### Surface

At the heart of a successful trail is the very surface with which it is constructed. Although a vast majority of trails are asphalt, a growing number of routes are being paved in either concrete or crushed limestone. Then there are newer, alternative surfaces such as porous asphalt or concrete applications as well. The rule of thumb above all considerations remains with the intended use of the facility. If the object of the Dunes Kankakee Trail is to attract the broadest number of uses possible, than far-and-away asphalt, or permeable asphalt, is the best surface. Not only does it provide a smooth ride for bicyclists and rollerbladers, but runners prefer this surface more often than concrete since it is gentler upon impact. Additionally, the cost factor to install asphalt is traditionally far less expensive than concrete. Another concern involves maintenance where asphalt again supersedes concrete. Since the traffic loads are less severe than on standard motorized roads, the surface remains viable far longer. In fact, the time between resurfacing is similar to that of concrete but is easier to repair in the interim. Crushed limestone does offer some benefits, but is completely ineffective for both rollerbladers and bicyclists with road tires, and thus should not be considered.

## Trail Location

Figuring out a general location for the trail should take into consideration the enjoyment and overall sense of security felt by the user. This involves installing a trail facility a certain distance from the actual roadbed of SR 49 where enough land is present. The standard distance in this case is roughly 10 feet, but can vary depending on conditions and traffic volumes. See Figure 5 at right.

When placing the trail in an INDOT right-of-way, the issue of “clear zone” must be considered, which is discussed in detail under the “Safety Consideration” section to follow.

As shown, the distance not only acts as a measure of added comfort for the trail user, but also provides an opportunity to enhance the roadway with the installation of trees or lower woody plant material. There is always the option of natural plantings as well which will be described in later sections.



FIGURE 5: Dan Burden

Unfortunately, there are segments of SR 49 that prove too challenging in placing a trail successfully. The most prominent area is the section of SR 49 directly surrounding I-94 in Chesterton. Not only is there a major interstate highway to contend with, but the grades which slope dramatically down from the roadway are simply too steep for further consideration. In this case, the trail will need to follow local roads

which traverse SR 49 and then return to the SR 49 corridor further south. Designs of facilities vary in these situations since not nearly as much ROW exists. Even so, there still needs to be consideration towards separation of uses, possibly a five foot (or less) grass buffer. (Figure 6)

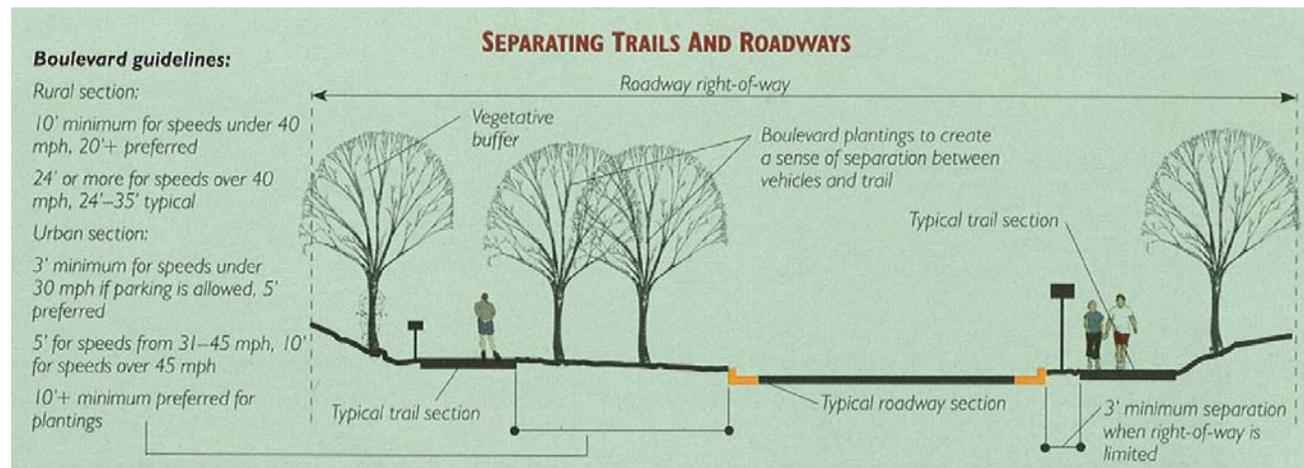
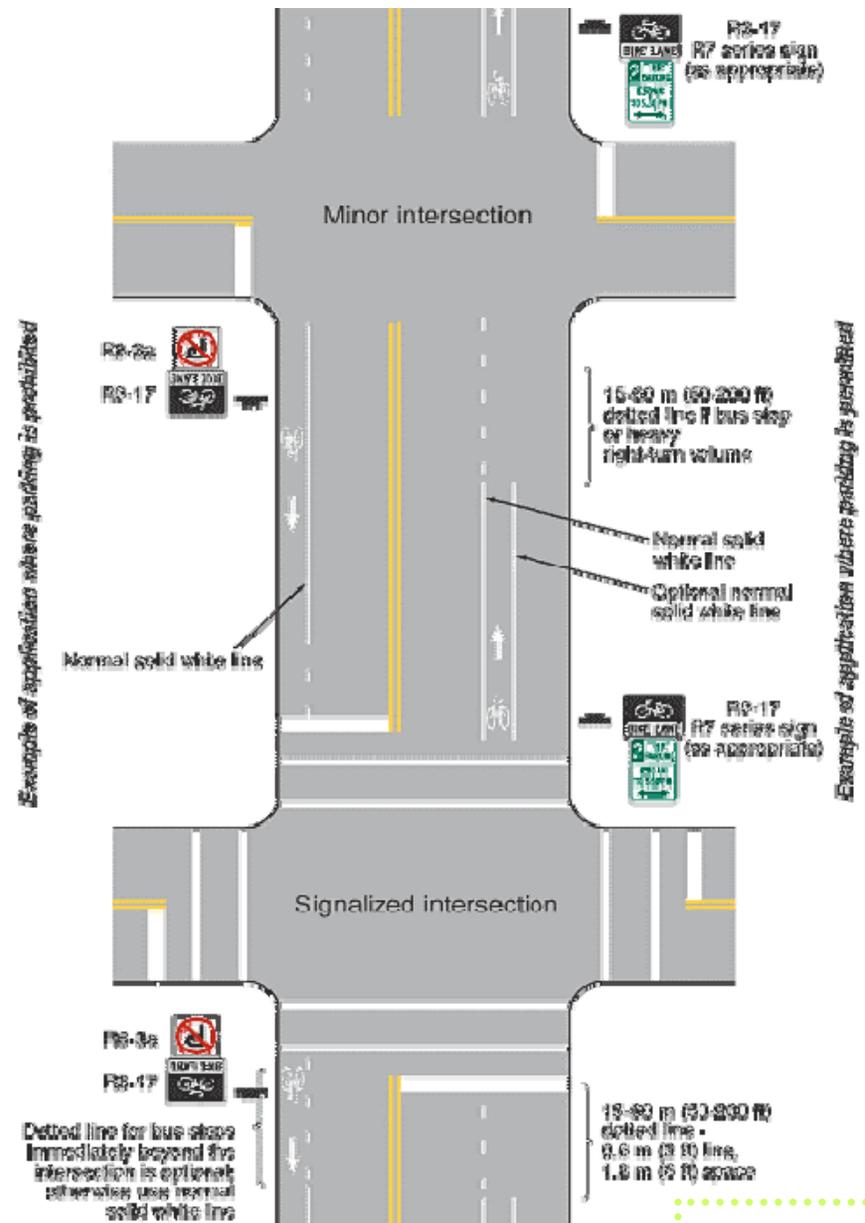


FIGURE 6: Minnesota Dept. of Natural Resources

Another equally effective option is the striping of bike lanes where roadway width allows. The standard width of said lanes is roughly 5 feet wide, but could be as narrow as 4 ft. if necessary. A major factor behind bike lane development is the existing on-street parking requirements allowed by the municipality. In many cases, bike lanes are not an option simply because the width necessary chokes out parking space which is never a popular option with residents. If permitted however, striped bike lanes provide excellent protection for bicyclists by offering a visual separation for car traffic to adhere to. Younger riders (under 14) can utilize adjacent sidewalks. Bike lanes are particularly effective in heavy urban areas where too many driveways exist. Side paths should be avoided in these locations due to the increased conflict with motorists who are not able to see users in enough time as they turn in. Proper bike lane installation is highlighted in Figure 7.

If both sidepaths and lanes are not feasible, the “last resort” is the installation of signage along the route. At the very least this provides users with needed direction through a community, while offering a level of safety by alerting motorists to their presence. Several types of signage exist to fulfill this purpose and are demonstrated in Figure 8.

FIGURE 7: Federal Highway Administration MUTCD



## Safety Considerations

Throughout the planned corridor along SR 49 a number of conflicts will arise regarding motorized traffic. These primarily include conflicts at intersections and grade separation from existing railroad crossings.

**Trail Separation:** A vital consideration behind the placement of a trail route remains the distance from the roadway. Along an arterial or collector route, a buffer area of five to ten feet would usually suffice. However, in the case of SR 49, due to the overall speeds allowed and the variety of vehicles using the road, a heightened focus will be required for correct path placement. The necessary separation can be accomplished through distance, the construction of a physical barrier or the placement of landscaping. Typical barriers can include fencing, sound walls and guardrails. It is the recommendation of this plan that no physical barriers be used and that the placement of the trail be positioned as far as possible from the road bed. This may require the placement at the very edge of the road ROW, or acquiring additional land beyond the ROW through purchase or easement. These considerations will need to be reviewed once a detailed assessment of the corridor is conducted.



FIGURE 8: Various Highway Safety Signage

When working with INDOT, a major factor in their determination of feasibility of a final location will be the issue of “clear zone” avoidance as defined in the American Association of State Highway and Transportation Officials’ (AASHTO) *Roadside Design Guide*:

*“A **clear zone** is the total roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a non-recoverable slope, and/or a clear run-out area. The desired minimum width is dependent upon traffic volumes and speeds and on the roadside geometry. Simply stated, it is an unobstructed, relatively flat area beyond the edge of the traveled way that allows a driver to stop safely or regain control of a vehicle that leaves the traveled way.”*

As mentioned above, the final determination of “clear zone” to the extent of building a barricade to protect trail users will be defined upon further review with INDOT officials. Based on their determination, it may be more cost effective to purchase additional right-of-way than to build a continuous barrier.



**Intersections:** There will be several points of conflict along the planned route which involve trail users crossing roadways at grade. Many of these crossings, due to heavy traffic volumes, will need to be channeled to existing signalized intersections. Where the trail intersects a number of important safety design elements will either need to be improved or installed to insure safe passage. Many are basic and required by law – such as handicapped accessible ramps and tactile cues for the visually impaired. There are other measures which should receive equal consideration to provide the best amount of protection for the trail user. These include:

- **Crosswalks:** Roadway demarcation is an essential element in any safe intersection design. The type of striping does vary depending on local preferences, but the most effective type remains the “zebra” style as shown here. Another mention of identifying crosswalks is through the use of colored or textured surfaces. Although aesthetically pleasing, in regards to safety, they are not a substitute for zebra styles. Where the trail crosses into residential and commercial sectors, these crosswalk styles can be investigated further, with a compromise being a wide painted white stripe on either side of the colored and/or textured markings.



- **Crossing Signals:** Nearly all existing stoplights in urban areas are equipped with the basic “walk-don’t walk” signals either shown in text or symbols. However, a far more effective device has rapidly emerged as the preferred standard for safe crossing – the “ped-countdown” signals. These innovative devices actually countdown the amount of time a pedestrian has to cross the street. It provides a far stronger sense of safety and all-but eliminates people from crossing and being left out in the street when the signal changes. A long-standing issue with INDOT’s acceptance of ped-countdown signals on state highways is that it might impede their complete build-out in the corridor. It is hoped that they will soon resolve any outstanding concerns regarding this accepted safety device.
- **Refuge Islands:** Where trail users will need to cross wider intersections – such as those located on SR 49 – a consideration should be afforded to the installation of paved “refuge islands” within the medians. Currently, a grass median does exist along SR 49 north of US 30, however, INDOT needs to consider paving a small section where the trail will cross the roadway. The advantage of such an improvement will grant a solid measure of safety and comfort for those crossing an intimidating and busy intersection. It also keeps trail users separate from motorized traffic while keeping them from waiting in grass that could be either too





wet or outright muddy. Another important reason for such an improvement comes down to the timing of the signalized lights, which will more than likely allow trail users to cross only one set of directional lanes at a time, hence keeping them in the median as they wait to finish crossing. A diagram of a refuge island is shown below in Figure 9.

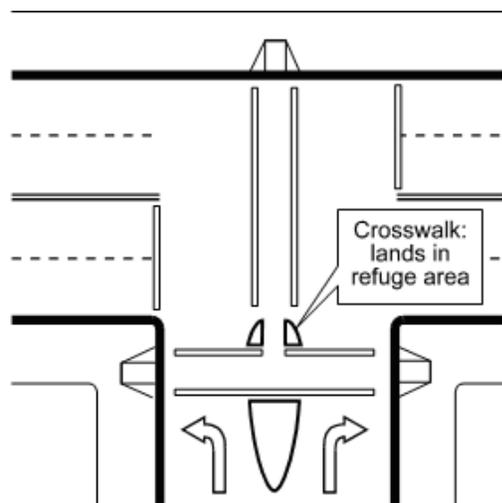


FIGURE 9: City of Austin, TX

**Bridges:** Another key factor in designing a safe corridor for trail users is separating their route from existing railroad traffic. Along SR 49, the concept of sharing existing bridge deck space over these railroads remains the most feasible solution, both from a fiscal and physical perspective. Since railroad companies are not agreeable to allowing new crossings of their tracks – either motorized or not – the only solution becomes spanning the tracks with a bridge or tunneling under them. The latter proves to be extremely cost prohibitive and most likely moot since the railroad

would have to shut down to allow for the construction. This leaves bridging the tracks the only option which the railroads agree upon. However, this too can pose a major financial challenge.

In the case of the SR 49 corridor, several bridge decks are in place that clear railroads, and are most likely wide enough to accommodate a separate lane for trail users. This lane would be separated by



a concrete wall, and preferably be eight feet wide at the least. In 2006, INDOT performed extensive reconstruction of many bridges on SR 49 north of US 6. Currently, these bridges allow for two carriage lanes and two shoulders, roughly ten feet wide each. A proposed solution would be to narrow each shoulder, or eliminate one altogether to allow for said trail lane. This concept has been presented to INDOT as part of their reconstruction projects on US 12 and US 20, and should be considered for the balance of the corridor as well.

Although a major reason to utilize the existing bridges remains separation from railroads, there will be a couple that will cross roadways as well. One in particular will involve Evans Avenue in Valparaiso, just north of the State Road 2 interchange. The proposed route concept, as detailed in the following chapter, will call for a unique design element to link down to Evans Avenue in order to provide access to the trail by residents in the city.

**At-Grade Railroad Crossings:** Since the railroads will not allow new crossings for non-motorized facilities, and where the option of sharing a roadway is not possible, there is still a method of crossing the rails – by sharing an existing road corridor.

**Ramp Crossings:** At one point along the route the trail is planned to cross the on- and off-ramps on the east side of the US 20 and SR 49 interchange. Since these ramps have a low average daily travel (ADT) count for motorized traffic, INDOT has given consideration to allowing a crossing to occur at-grade. From here, trail users can utilize the trail lane on the newly constructed bridge over US 20.

Figure 11 below demonstrates how a proposed ramp crossing might appear to those accessing the area.



FIGURE 10: John S. Allen

**Wayfinding & Identity:** Throughout the entire corridor, attention to directional and location signage must be given. A major dilemma for nearly all trail systems in NW Indiana is the lack of signage informing trail users where they are, where to go and even what streets they are crossing. A unified series of signage, or “wayfinding” elements, must be agreed upon to ensure a consistent and predictable experience for those on the route. The most obvious wayfinding products would be signs along the route to help direct those to the route and to destinations from the route. In this capacity, the PCCRVC can assist in the design and installation of these signs where appropriate. Apart from this main level of wayfinding would be elements such as street signs and components that are of an interpretive nature, detailing a number of themes such as community history, surrounding ecology or tips for fitness. All of these elements can be unified through a series of graphic elements incorporating logos and colors to help effectively market the route through a number of outlets [Figure 11].

FIGURE 11: Wayfinding Examples



## Operations & Maintenance

Although plenty of hard work and effort goes into the initial development of a trail, little thought is often given to how it should be maintained and operated. A well-organized and thought-out operations and maintenance (O & M) plan is nothing short of essential in providing safe enjoyment of the trail facility. Thus, at the front end of this planning process, the elements of proper O & M planning need to be incorporated into a workable and sufficiently budgeted plan (from Robert Sterns of the American Trails Board):

- Maintenance: Routine and Remedial
- User Safety and Risk Management
- Programming and Events
- Resource Stewardship and Enhancement
- Marketing and Promotion
- Oversight and Coordination

Within these core planning areas, the following activities should be considered when outlining a proposed budget:

- Inspection and Citizen Response
- Trail Surface Maintenance
- Repaving and Pavement Overlays
- Sweeping/Street Sweeping (For On-Street Facilities)
- Street Surface Upkeep and Repair (On-Street Facilities)
- Parking Lot Repair at Trailheads
- Maintain Connecting On-Street and Sidewalk Routes
- Vegetation and Pest Management (e.g. Trimming Overhanging Branches)
- Irrigation Systems
- Litter and Trash Removal
- Graffiti and Vandalism Control
- Dust Reduction
- Address Detours/Disruptions (With Workable Alternative Routes)
- Remedy "Social Trails" (Such as Shortcuts)
- Repair Trail Structures and Fixture/Erosion Control
- Signage (Especially Safety Signage), Striping and Lighting
- Rest Areas, Shelters and Water Stations (Including Equestrian)
- Toilet Facility Service
- Patrol, Security, Enforcement, Safety Hazard Reduction
- Special Event Policies and Permitting
- Education and Enforcement
- Accident and Incident Data Tracking



Overall costs can range significantly based on the number of amenities, climate and staff dedicated to the route. In the case of a Dunes Kankakee Trail, this figure would range from \$2,000 to \$10,000/mile per year. A number of funding streams are available which would include:

- General fund allocations;
- Revenue from ROW leases such as cable use;
- Participation and partnering with the stakeholders such as a flood control agency, streets department, or a homeowners association;
- Creation of an endowment from philanthropic or other sources to generate on-going revenue;
- Recruiting volunteers, youth and adopt-a-trail participants and sponsors.

A proper O & M program will reduce long-term costs by extending the life of trails and trail components, and it will win the support of the residents, homeowners, and businesses. A community with trails and greenways needs to invest over the long term in a quality O & M program. Indeed, a community, state or nation cannot afford to not make that investment (Sterns).

It is to be expected that the local jurisdiction where the trail traverses will be the primary authority for O & M duties.



# Environmental Concepts

## Conservation Design

Trails should be located, designed, and constructed to protect, preserve, and enhance environmentally sensitive or valuable features, such as riparian corridors, wetlands, watershed critical and priority areas, headwaters, and well-head protection areas.

### Examples of Conservation Design

- Identification and preservation of important natural features such as wetlands and forested areas
- Reduced pavement widths and/or use of pervious materials



Constructed wetland

## Low Impact Landscaping

Low impact landscaping is landscaping modeled after nature. It is designed to manage rainfall at the source using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source.

Landscaping should be designed with aesthetics in mind, but long-term maintenance should also be a consideration. Low impact landscaping can reduce labor, watering, and chemicals necessary to maintain a site. Properly preparing soils and selecting species adapted to a site greatly increases the success of plant establishment and growth allowing for biological uptake of pollutants.

### Examples of Low Impact Landscaping

- Use native plants
- Convert turf areas to shrubs and trees
- Plant wildflower prairie along medians and in open space (or at minimum, maintain longer grass lengths)



Conservation design utilizing native landscaping



Photograph of a riparian buffer

### *Integrated Plant Management*

ROW maintenance requires multiple objectives and techniques, such as mowing, herbicide, watering, trees, invasive species management, plantings, mulch, prescribed fire, education, and shade. Dead and downed trees that have fallen will be removed from the trail grade, but left in the general vicinity of the trail for insect and mammal habitat. Trees will not be removed unless they are determined to be a hazard.

### **Suggested Integrated Vegetation (Pest) Management**

- JFNew's "Turf-to-Prairie"
- Avoid introductions of invasive plants
- Emphasize successful native reintroductions

### *Invasive/Exotic Species Management*

Establishment of a program of monitoring and inspection for invasive exotic species will be implemented. A program for both aquatic and terrestrial species will begin during the construction phase. Some common invasive exotics that will be monitored (not an exclusive list) are purple loosestrife, garlic mustard, spotted knapweed, honeysuckle, buckthorn, and autumn olive. Policies that address these invasive threats to the trail area's resource base will be followed. Control measures appropriate to the species of invasive will be used. These measures may include manual harvesting, plowing, use of herbicides or poisonous agents, fire, and natural predators.

### **Existing Efforts**

- Cooperative Weed Management Areas
- Comprehensive Weed Management Plan
- Northwest Indiana Invasive Plant Network

### Wildlife Crossings

Wildlife crossings will allow for habitat connectivity and maintain foraging and shelter habitat. Each year, more than 200 motorists are killed and thousands more are injured in animal-vehicle collisions. Millions of vertebrates - birds, reptiles, mammals, and amphibians - are killed every year. Moreover, roadways often cut through habitats, fragmenting animal populations and disrupting ecosystems. Trail design should incorporate bridges, culverts, tunnels, and barriers that redirect animals over, under, or around the highway and greatly reduce the risk of vehicular collision. The crossings are designed to coincide with natural animal movement paths, so as to minimize habitat disruption and fragmentation.



Wildlife crossing

### Infiltration Practices (BMPs)

Infiltration practices are engineered structures or landscape features designed to capture and infiltrate runoff. They can be incorporated into trail design to reduce the volume of runoff from an area and recharge ground water. Infiltration features can result in aesthetic benefits and, in some cases, recreational opportunities; for example, some infiltration areas can be used as playing fields during dry periods.

#### Examples of Infiltration Practices

- Infiltration basins and trenches
- Porous pavement or asphalt
- Rain gardens and other vegetated treatment systems



A pervious brick walking area



**Filtration Practices**

Filtration practices are used to treat runoff by filtering it through media that are designed to capture pollutants through the processes of physical filtration of solids. Filtration practices offer many of the same benefits as infiltration, such as reductions in

the volume of runoff transported offsite, ground water recharge, increased stream baseflow, and reductions in thermal impacts to receiving waters. Filtration practices also have the added advantage of providing increased pollutant removal benefits.

**Examples of Filtration Practices**

- Bioretention/rain gardens
- Vegetated swales
- Vegetated filter strips/buffers
- Constructed wetlands



Walking area utilizing rain gardens to filter runoff



Pervious paving stone trail amenity

# CONCEPT ROUTE



This chapter provides guidance behind a feasible, off-road trail route along a majority of the SR 49 corridor. The overall concept is divided into three overall phases:

- **Phase 1:** From the Indiana Dunes State Park south to the Porter County Expo Center, just south of US 30
- **Phase 2:** From the Porter County Expo Center south to the Town of Kouts at State Route 8
- **Phase 3:** From State Route 8 to the Kankakee River, and the segment of the American Discovery Trail from Hebron to Kouts

Jurisdiction	Trail Miles	Estimated Cost	Type
Indiana Dunes State Park (DNR)	0.7	\$315,000	Trail along SR 49
Dunes National Lakeshore (NPS)	0.2	\$80,000	Trail along SR 49
Town of Porter	1.6	\$720,000	Trail along SR 49
Town of Chesterton	3.0	\$1,200,000	Trail along local roads
Town of Chesterton	1.1	\$440,000	Trail along SR 49
Porter County (Unincorporated)	5.6	\$2,250,000	Trail along SR 49
City of Valparaiso	1.2	\$480,000	Trail along SR 49
City of Valparaiso	3.6	\$1,440,000	Trail along local roads/US30
<b>Approximate Built Distance</b>	<b>17 miles</b>	<b>\$6,925,000</b>	

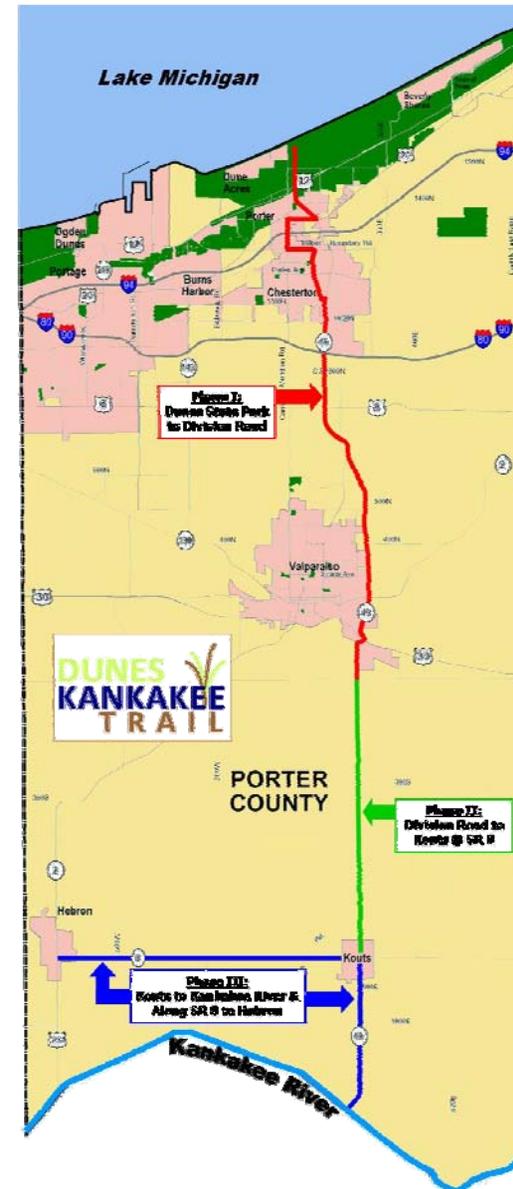


## Phase 1 Development

This report seeks to detail the concept route within the Phase 1 limits. This phase remains the most immediate need in the entire corridor since the largest number of people live within its scope, including the desire to link to the Indiana Dunes. Both Phases 2 and 3 will be considered in detail once vital stakeholders are identified and have expressed their initial support to the trail concept. At this time, all necessary stakeholders have expressed said desire for the development of Phase 1, and as such this plan has been developed to expedite the route in this corridor.

Phase 1 represents the longest and most populated corridor within the trail study limits. It crosses through the communities of Porter, Chesterton and Valparaiso for an approximate distance of 19 miles. Of this total, approximately 4.5 miles will tangent off of the main SR 49 road ROW due to a number of physical constraints in the Town of Chesterton and vicinity. The concept route for Phase 1 identified herein was developed with all major stakeholders along the proposed route. Through these discussions, this concept route became the most feasible based on local knowledge regarding the geology and available land in the planned corridor zone.

The following maps highlight several key segments that constitute the Phase 1 corridor area. In some areas, added details are generated to present a clear vision of the design of the trail in that particular vicinity.



### Indiana Dunes State Park to Interstate 94

The first segment of Phase 1 will begin at the newly reconstructed entrance to the Dunes State Park and follow south along a planned trail leading to the Dune Park South Shore station. INDOT is studying the feasibility of installing a separate trail lane on the bridges over US 12 and US 20. The latter would involve at-grade crossings of the on and off-ramps. Continuing south the trail would then enter the Dorothy Buell Memorial Visitor Center parking lot and continue south to East Oak Hill Road. Due to the previously mentioned concerns of I-94, it was determined that the route will cross East Oak Hill Road, then proceed on the west side of SR 49, share a railroad bridge, and proceed SE along the old Calumet Avenue ROW. Following this route the trail would connect back

to the railroad and share the I-94 underpass, then route back towards Calumet Avenue on the south side of the expressway. Eventually the trail will connect to the existing section of the road, and proceed south on the east side towards downtown Chesterton. *If this route proves infeasible, an alternate route has the trail running along East Oak Hill Road west to the Town of Porter, linking to the Orchard Way Pedestrian Path at Waverly Road. An 8' wide side path is recommended in this segment as detailed in best practices chapter. At Waverly Road, the trail would continue south, over I-94 via a separated trail (concrete wall) and link to Woodlawn Avenue to connect into the planned Chesterton side path system.*



### Woodlawn Avenue to Indiana Toll Road

From Calumet and Woodlawn Avenues, the route would proceed south via a number of design treatments based on the existing physical constraints along the roadway. Eventually the route will branch off of Calumet onto North 100 East, eventually arriving at Railroad Avenue. The trail will head east at this point and immediately cross

under SR 49, where then it will head south along the road ROW, and elevate along the embankment back to the roadway grade. From here the trail continues along SR 49, crossing at-grade intersections, eventually arriving at the Indiana Toll Road bridge where another separated trail lane is proposed to access points south.



### Indiana Toll Road to East 500 North

This segment of the Dunes-Kankakee Trail would represent near-uninterrupted length of approximately 5 miles in distance. The only major conflict would be the interchange at US 6 where the trail has planned to follow a ramp to the US 6 grade, where it would cross at an existing stoplight, then continue south along the off-ramp and back into the SR 49 ROW. There is one railroad which

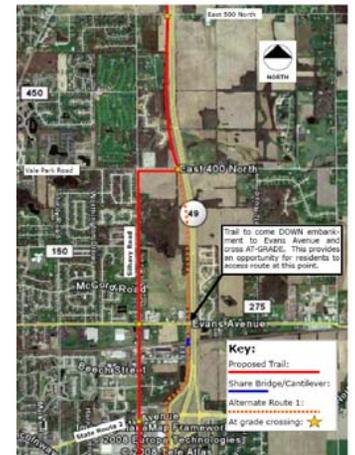
traverses south of the Toll Road which would require a separate trail lane on the bridge. South of US 6 the trail would cross over to the west side of SR 49 via the Calumet Avenue overpass, where another separated bike lane would be located. The trail crosses at this stage so as to access the majority of the City of Valparaiso population base, which is located almost entirely on the west side of SR 49.



### East 500 North to State Road 2

The image at right outlines the route continuing south into the Valparaiso jurisdiction. When the route approaches Vale Park Road, the proposed route will run west to Silhavy Road, then south to US 30 where it would meet up with the alternate route location. There exists adequate right-of-way, and there is an existing wide sidewalk south of SR 2. The main route was taken off the SR 49 corridor by Valparaiso officials since the Silhavy

route is part of their Pathways Plan. Silhavy also represents a major destination corridor for the city with numerous links to adjacent residential subdivisions and connections to several commercial/retail facilities. As for the alternate route along SR 49, of major note is the trail running down the embankments on Evans Avenue (previously mentioned in Chapter 2) and winding the trail to an existing stoplight east of the State Route 2 interchange.



### State Route 2 to Porter County Expo Center

This last detailed segment of Phase 1 proceeds south from SR 2 where it would follow Silhavy Road to US 30, eventually winding westward toward Strongbow Center Drive. At this point the route would cross US 30 at the stoplight, then head directly east back towards SR 49

sharing the on-ramp. From here the trail would ramp up to a bridge crossing another set of railroad tracks via a separate trail lane, then continue south until it reached Division Road, where a signalized intersection can be utilized to access the Porter County Expo Center.



# IMPLEMENTATION



Bringing together the right combination of support and financing to expedite Phase 1 will involve careful coordination between the stakeholders. The task at hand seems daunting – coordinating and funding an 18 mile trail with development costs ranging from \$150,000 to nearly \$1 million per mile (depending largely on ROW acquisition). The following outlines strategies towards successful completion.

**Interlocal Cooperation:** Paramount towards any success is complete cooperation of all relevant stakeholders along the planned corridor. Two levels can be identified in this case – Primary & Secondary Stakeholders. Both of these groups combine to make up the ***Dunes-Kankakee Trail Steering Committee***.

**Primary Stakeholders:** These involve the municipal entities along the route who can directly impact the eventual development of the trail, provide maintenance and secure funding:

- Town of Porter
- Town of Chesterton
- City of Valparaiso
- Porter County Government

Also included are those state and federal entities that have significant landholdings in the corridor:

- Dept. of Natural Resources (Indiana Dunes State Park)
- National Park Service (Indiana Dunes National Lakeshore)
- Indiana Department of Transportation

**Secondary Stakeholders:** No less important are these agencies that play significant roles towards advocating the Dunes-Kankakee Trail in their respective circles. Unlike the Primary group, these Secondary Stakeholders are largely unable to fund and maintain the trail. However, they can influence greatly the overall design and generate vital support from the public regarding the initiative. These include:

- Northwestern Indiana Regional Planning Commission (NIRPC)
- Porter Count Conv., Rec. & Visitor Commission (PCCRVC)
- Lake Michigan Coastal Program (DNR)
- Save the Dunes
- Save the Dunes Conservation Fund (SDCF)
- City of Portage

These Primary Stakeholders, and to the greatest extent possible the Secondary Stakeholders, will collaborate on a formal Interlocal Agreement (IA) in support of this planning document. The IA will directly link to this planning document, in turn providing vital direction for the project in terms of design, funding and maintenance strategies. An example of a successful IA involving a multi-jurisdictional trail project is the Pennsy Greenway Interlocal Agreement (PGIA) signed in 2007. The PGIA brings together Crown Point, Schererville, Munster and the Lake County Parks department in a comprehensive manner that determines a sole engineering firm behind the eventual design of the facility, including language that protects the identity of the corridor into Lansing, IL. Such an instrument would prove vital in terms of the DUNES KANKAKEE TRAIL project. Each entity's legislative body will need to take action to make the IA a legal document governing proper development. With an IA executed, the project could be presented to state legislators for their added support.



## Financing

Inevitably, the question of funding becomes the lynchpin issue towards any project's development. Unfortunately, many assume that building a trail is simply too cost-prohibitive and little energy is ever expended to secure funding. However, plenty of alternative funding avenues are available outside a local jurisdiction's own coffers. This section sets out to identify these resources.

### Grants

One of the most popular mechanisms in developing off-road trails nationwide was the establishment of the Transportation Enhancement (TE) program through the Federal Highway Administration. Started in 1992, the TE program has directly contributed to well-over 10,000 miles of new trails nationwide, and sparked a huge interest in trail use. In the NIRPC region, nearly \$40 million has been allocated for new trails thanks to TE, which remains the most significant funding avenue for trail development. NIRPC has established a comprehensive review methodology in ranking projects for TE monies based on their Regional Priority Trails and Corridors Map. Since the Dunes-Kankakee Trail is highlighted as a "High Priority" corridor, it stands a good chance of being funded through TE. The program is solicited annually, with the NIRPC region receiving \$2 million. The maximum award is \$1 million, so each municipal entity would most likely need to submit for construction monies individually. Engineering and ROW acquisition are also eligible for TE funding, and possibly one or more communities could come together on an application.



Other sources of possible grant funding include federal Congestion, Mitigation & Air Quality (CMAQ) and Surface Transportation Program (STP) monies. Both of these programs are administered by NIRPC and solicit application every other year. Trail projects are eligible under each, but awards do not approach those granted with TE monies. The typical award for STP and CMAQ projects ranges from \$200,000 to \$600,000. The DNR administers their Recreational Trail Program (RTP) every year as well, but provides even less on average than STP and CMAQ.



**Other Sources**

Outside of federal funding avenues are those that are allocated by the Regional Development Authority (RDA). The RDA provides millions in infrastructure monies throughout Lake and Porter Counties for projects that are key in building the region’s economic advantage, as well as those that enhance our quality of life. A recent RDA award was given to the City of Whiting in part to complete the George Lake trail to Whiting Park. The Steering Committee can emulate this success with a proactive effort in securing RDA funding for one, or several segments of the trail.

There is also the option of working with state and federal legislators on appropriations for some of the trail’s development. An example of such funding will be occurring in Valparaiso at the Vale Park Road interchange through an infusion of Major Moves funding. Valparaiso also used Major Moves money to build a significant length of side paths within their city limits. These monies are distributed to all counties where the Indiana Toll Road traverses and represents an excellent outlet for additional funding.

On the federal level, earmarks for various projects in a Congressional district are commonplace and would be an excellent source for the trail. The Steering Committee needs to explore strategies to properly lobby Congressmen Visclosky’s and Donnelly’s offices and gauge their interest in supporting phases of the development. On a broader scale, Congress will be working to reauthorize new monies for a myriad of transportation-related projects – including the TE program. Embedded in this legislation are a number of “Demonstration Projects” that receive direct funding in the bill. The Steering Committee needs to advocate this avenue with the Congressmen as well.

Of course the option for financial participation by the Primary Stakeholders through their own coffers clearly exists, and if employed, would greatly expedite the trail’s development since local money is far less restrictive than federal. That would be a matter for each legislative body to consider based on tight fiscal realities.



# ADDENDUM



## ACRONYMS/GLOSSARY

**ACOE-** Army Corps of Engineers

**BMP-** Best Management Practice

**CELCP-** Coastal and Estuarine Conservation Land Program

**EPA-** Environmental Protection Agency

**FRIENDS-** Friends of the Indiana Dunes

**ICRAT-** Indiana Coastal Restoration Action Team

**IDEM-** Indiana Department of Environmental Management

**IDNR-** Indiana Department of Natural Resources

**INDOT-** Indiana Department of Transportation

**INDU-** Indiana Dunes National Lakeshore

**LEED-** Leadership in Energy and Environmental Design

**LID-** Low Impact Development

**NIRPC-** Northwest Indiana Regional Planning Commission

**NRCS-** Natural Resources Conservation Service

**PCCRVC-** Porter County Convention, Recreation & Visitor Commission

**ROW-** Right of Way

**SDCF-** Save the Dunes Conservation Fund

**SWCD-** Soil and Water Conservation District

**TNC-** The Nature Conservancy

**USDA-** United States Department of Agriculture



# FULL SCALE MAPS

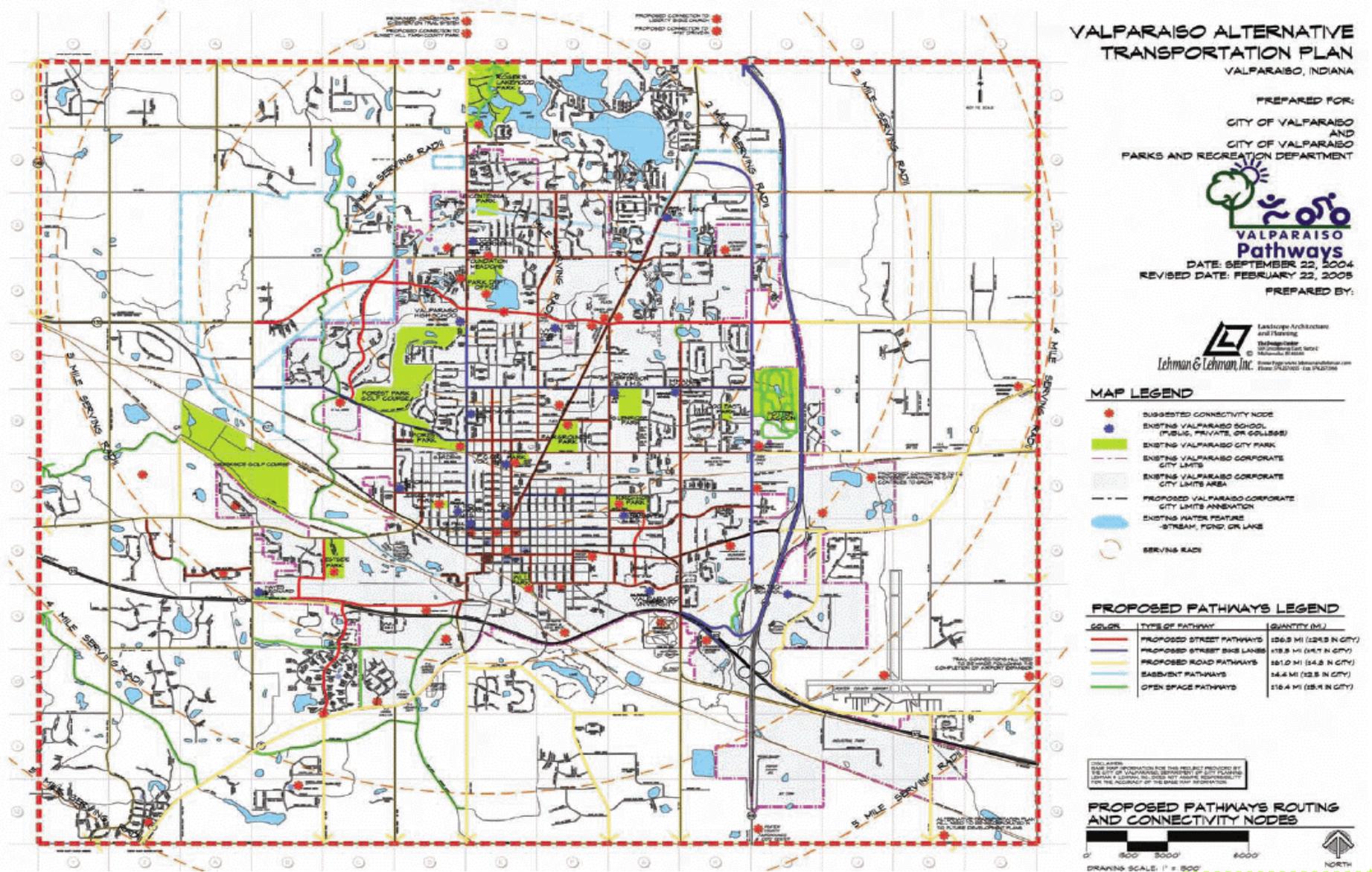


FIGURE 3: City of Valparaiso

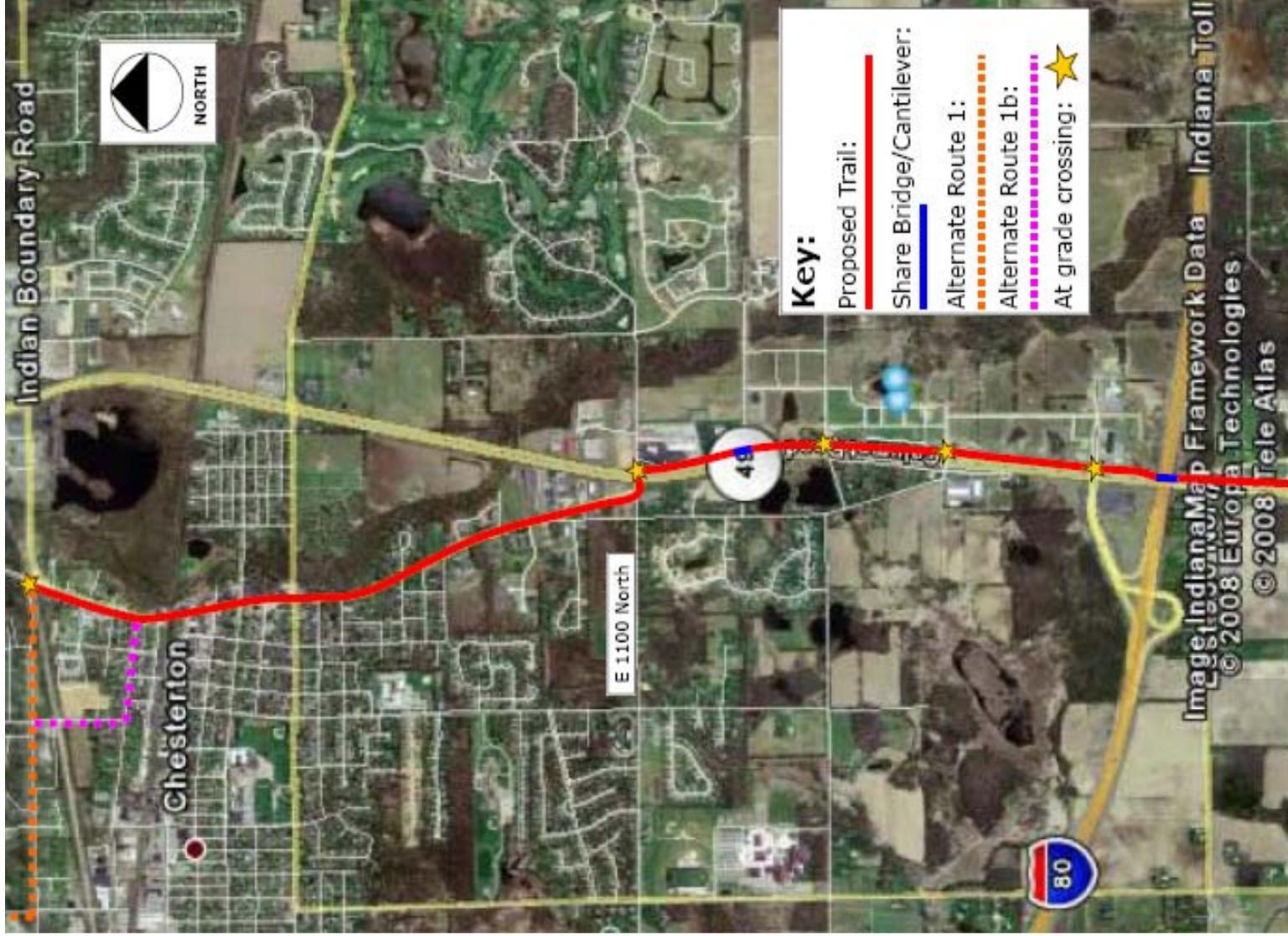




**State Route 49 Trail Route Study**  
 Northwestern Indiana Regional Planning Commission &  
 Porter County Recreation, Convention and Visitors Commission  
 May 2009

**State Park to Chesterton**



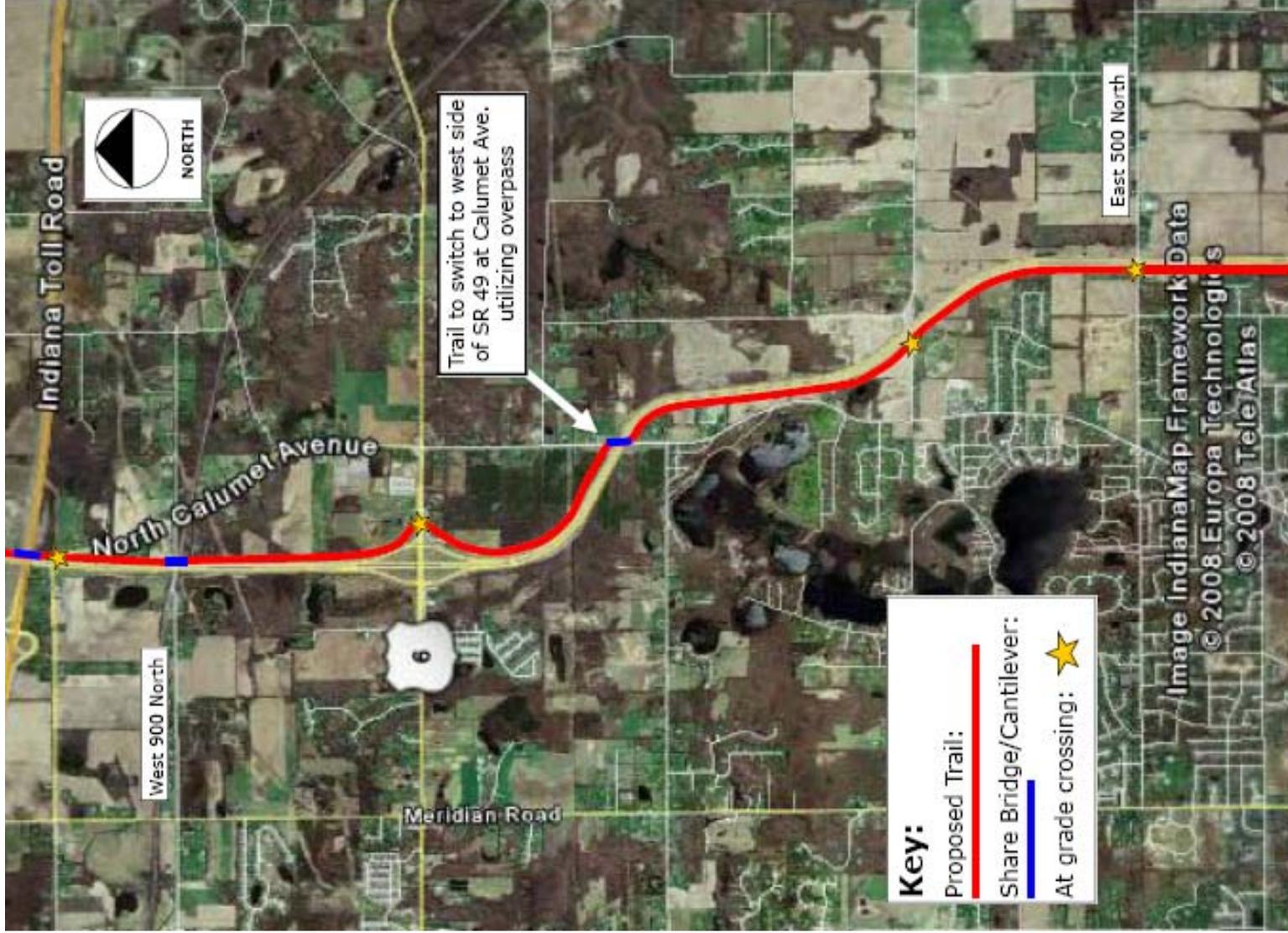


### **State Route 49 Trail Route Study**

Northwestern Indiana Regional Planning Commission & Porter County Recreation, Convention and Visitors Commission  
May 2009

**Indian Boundary Rd to I-80 (Toll Road)**





### State Route 49 Trail Route Study

Northwestern Indiana Regional Planning Commission  
Porter County Recreation, Convention and Visitors Commission  
May 2009

**I-80 (Toll Road) to East 500 North**





**State Route 49 Trail Route Study**

Northwestern Indiana Regional Planning Commission & Porter County Recreation, Convention and Visitors Commission  
 May 2009

**East 500 North to State Route 2**



**State Route 49 Trail Route Study**

Northwestern Indiana Regional Planning Commission &  
Porter County Recreation, Convention and Visitors Commission  
May 2009

State Route 2 to US 30/Fairgrounds



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